The Electric Kool-Aid Bandwidth Test[1]

The Electric Kool-Aid Bandwidth Test, By Evan Ratliff[2]

Luke Stewart boldly sold politicians, businesspeople, and financiers on his trillion-dollar idea: Use the electrical grid to carry data at speeds faster than we've ever seen. Never mind how.

Inventor William "Luke" Stewart is a genuine national treasure, the kind of person who comes along once, maybe twice, in a century. How do I know? Well, I heard it from business executives, congressmembers, academics, military leaders, journalists. These people met Luke Stewart, sized him up, and concluded that his scientific intellect was virtually unparalleled. His ideas, they said, could alter not only the future of the Internet but the fate of humanity itself.

But sometimes you have to go straight to the source. The real reason I know that Luke Stewart is a national treasure - and, I suspect, the reason that all those other people did, too - is that he told me so himself. It was February 2000. He was sitting across from me, behind a huge mahogany desk flanked by US and Texas flags, in the top-floor office of his Dallas-based company Media Fusion. He said it very matter-of-factly - "I am a national treasure" - in the tone of someone who has employed the description often.

I had come to Stewart's offices to hear about his groundbreaking scientific discovery - US patent number 5,982,276, for conveying broadband data over electric power lines. The idea of sending information via the electrical grid, rather than over telephone copper or fiber-optic cable, has been around for decades. The field, known as power line communications, or PLC, is pockmarked with wasted investments and technical failures. Only within the past few months have several companies begun to deploy limited PLC ventures.

By piggybacking on the magnetic field instead of on the electricity itself, Media Fusion planned to operate at a billion-plus gigabits per second.

Stewart, however, had a much grander vision, based on what he considered to be a dramatic discovery: Data could hitch a ride on the magnetic field created by electric currents running through power line wires. By piggybacking on this magnetic field, instead of on the electricity itself, he could obtain almost limitless speeds of transmission. In early 1998, Stewart founded Media Fusion with plans to bring this infinite-bandwidth technology, which he named advanced sub-carrier modulation (ASCM), to every home with an electrical outlet. His patent, issued in November 1999, brought Media Fusion's first wave of glowing press coverage. Gee-whiz reports spewed from ABC News: World News Tonight, The New Scientist, CNET, and The Wall Street Journal Europe. Most exuberant of

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all was Dallas' D Magazine, whose cover declared Stewart to be "Bill Gates' next nightmare." Stewart's technology, writer Richard Urban reported, had earned him a Nobel Prize nomination - and could be worth at least $1 trillion.

Media Fusion promised to deliver, within two years, bandwidth at speeds thousands of times faster than what's possible with fiber. Stewart was company chair, while the board of directors included government heavyweights such as former Speaker of the House Robert Livingston; Terry McAullife, a leading Democratic fund-raiser and close friend of then-President Clinton; and Admiral James Carey, former chair of the Federal Maritime Commission. The firm's Web site declared that the ASCM technology would "impact every facet of our life," and the computing power of the network would be "exponentially more powerful than any supercomputer to date."

All of this seemed like bold talk for a previously unknown startup. But these were heady times for the Internet, and everything I had read added up to a company that, if successful, would revolutionize communications. Before leaving to see Stewart, though, I called a Fortune 100 company executive who I'd heard had taken a look at Media Fusion's technology. At first mention of the company's name, he cut me off. "Media Fusion is a quagmire," he said. "I don't want to wade into it." The technology, he told me, was "beyond science fiction." When I tried to get him to elaborate on the record, he balked. "I never spoke with you," he said. If I ever told anyone about our conversation, he would deny it. "They have significant government figures on their board. These people have men who would die for them." I told him I was leaving for Texas in a few days, to meet with company executives in person. Before he hung up, he offered one piece of advice: "Be careful."

On the morning I visited Media Fusion's posh 11th-floor offices in north Dallas, Stewart showed up an hour late. What he lacked in punctuality, though, he made up for with a mix of enthusiasm, humor, and arrogance about Media Fusion's prospects. I soon found myself dizzied by technical jargon and humanitarian fervor - laced with a dose of intrigue. The chair and chief scientist of Media Fusion projected the kind of good-old-boy, back-slapping demeanor usually attributed to Texas politicians. Bouncing around his office from desk to whiteboard, clutching a handful of colored markers, he attempted to enlighten me about his company's future.

"What we are," he began, with a Texas twang, "is a bunch of computer geeks that figured out how to use the electric grid as a motherboard." The basic setup of the ASCM network, as he explained it, was simple. Media Fusion's control centers, situated near power substations around the country, would load voice, e-mail, and even high-definition video onto power lines and route the data to every home on the grid. Consumers, in turn, could connect their appliances to special "night-lights" plugged into any power outlet in the house. Each device would act like a modem, having the ability to extract the data pumping through the outlets. A user's total cost for the night-light and to get the service up and running: less than $60.

For that price, anyone with electricity running into his home would have access to an almost unimaginable amount of bandwidth. Where available, a typical DSL line or cable modem can provide speeds up to about 8 Mbps. Even the fiber-optic trunk lines that move the data around the country do so at only up to 10 Gbps. Media Fusion was talking about a

network that operated at exobits - more than 1 billion gigabits - per second. That would translate, the company said, into 2 Gbits right in your home: more bandwidth than you'd ever know what to do with. In a flash of Stewart's genius, Media Fusion had apparently solved the last-mile problem once and for all.

Equally amazing was Stewart's claim that the night-lights would obviate the need for routers. "I always get a kick out of talking to telecom engineers," he laughed. "'Well, our photons are as fast as your electrons.' Yeah, until it hits the router. Ha! And then it just eats crap!"

Up to that point, the largest PLC project had been a joint venture between Nortel and British company United Utilities. Known as Nor.Web, the combined entity conducted trials of a power line system in England. After three years of testing, the companies determined that it was in fact possible to send data over power lines, just not economically viable. They abandoned the venture in 1999.

At least a dozen companies in the US and Europe are now attempting to succeed where Nor.Web failed. In July, German utility RWE flipped the switch on a 2-Mbit trial system. A US company called Ambient, working with Cisco, has conducted successful alpha tests with utility Con Edison in New York.

Triumphantly, Stewart would deliver the Net and all that came with it to the rural backwaters of the world. And in the process, he'd make trillions.

The greatest obstacle to power line communications involves preserving the data when the electricity travels through a transformer. As the voltage is stepped down from long distance lines to be sent to individual homes, the data signal is stripped off the wire. Small, bridgelike devices are therefore required to link each transformer. In the US, one transformer serves only about 10 houses, creating the need for hundreds of thousands of these new devices.

Stewart's patented discovery promised to get around the problem. Researching in the MIT library one day, he overheard a couple of ham radio operators discussing how lightning strikes in Africa had interfered with their transmissions. The implication, he said, was that "electrons travel thousands of miles without any signal loss." And then it hit him: The magnetic field surrounding an electrical wire, a well-known but little-used property of physics, could be employed to send data. "That was an epiphany for me," he recalled. "Obviously we can't use lightning to call Mom - too dangerous. So what can we do? We can look at what happens when high voltage flows. What happens to the material around the conductor? Is there anything that happens while the voltage flows back and forth that can be captured, extracted, and identified at a later time so that you can make sense out of it?"

His answer: Use a maser - the microwave equivalent of a laser - to fuse the data onto the magnetic field surrounding the wire. Once the data was in the field, quantum switches would shove it down the wire "at damn near light speed," said Stewart, right to your wall outlet. Riding on the magnetic field, the analog signal would shoot through the transformer without so much as a hiccup.

Stewart seemed aware of the fact - alluded to by the anxious executive I had spoken with - that many scientists weren't buying his theory. The patent, according to some physicists who examined it, couldn't be translated into a working system. No masers or Q switches have been proven capable of adding and removing data in a magnetic field.

Stewart's invention would require a wholesale rethinking of modern physics. "Maxwell's theory of electromagnetism, one of the most robust deductive creations of human intelligence, simply doesn't describe how to use a field as a waveguide," said Paul Grant, a condensed matter physicist and a science fellow at the Electric Power Research Institute, "not to me or any physicist I've consulted with."

Revolutionary developments in science, Stewart countered, require a paradigm shift, often led by a Copernicus-like renegade. Physicists were locked into preconceived notions when it came to ASCM. "Whenever you are solving a science problem," he said, "when you come in with a prejudice, then you lose the ability to think freely."

Besides, all skepticism and disbelief would fade, he reasoned, when Media Fusion demonstrated the technology via a dramatic broadband test, sending HDTV across the grid for the public to see. According to Stewart, the company had negotiated with Dallas media giant Belo to provide the signal for the test, which had been delayed several times but was now scheduled for March 15, 2000.

Stewart believed the demo would do more than show the world the working technology; it would create a chain reaction of massive investment, industry upheaval, and government support. Triumphantly, he would deliver the Internet, and all the development and education that came with it, to the rural backwaters of the world. And in the process, he'd make trillions.

It all sounded too good to be true, and Stewart seemed to sense my lingering doubts. As I climbed into my car at the end of the day, he shook my hand firmly and looked me squarely in the eye. "We will succeed," he said. "It's just a matter of time. We're not afraid of anything." And why should he have been? In February 2000, Stewart held a US patent; the broadband test was only weeks away; and he counted some very powerful people among his allies. In Washington, Media Fusion had clearly struck a nerve with the notion of bringing bandwidth to rural America. In the tech industry, the line for the Media Fusion bandwagon stretched around the block.

A retired Navy rear admiral named James Carey, then Media Fusion's director of government relations, opened doors on Capitol Hill for Stewart. It was Carey, the former chair of the Federal Maritime Commission, who recruited McAullife and Livingston onto the board. The technology, Carey said, was for real - even if he didn't quite understand it. "I know enough to know if something makes common sense or not," he said. "As near as I can tell, the things that needed to be done to have technical people in the process have been done."

With Carey's help, Stewart introduced the technology to half a dozen members of Congress - as well as high-level officials at the State Department and the FCC - and presented his ideas about why it should be funded (but not regulated) by the government. The result: a $10 million Department of Defense expenditure for Media Fusion in the 2000 federal budget, for "undersea warfare applications" using ASCM. The provision was eventually dropped, but it served notice of the nascent company's unusual influence in Washington.

When Media Fusion moved into its Dallas offices, US Representative Dick Armey (R-Texas) showed up for a ribbon-cutting photo-op. In March 2000, Stewart was invited to the St. Patrick's Day party at the White House. At one point in the evening, he ended up with five minutes of chat time with President Clinton. The company then set up a political action committee, giving thousands to various political campaigns, including Senator

Hillary Clinton's.

Representative Billy Tauzin (R-Louisiana) was particularly enthralled with Media Fusion's prospects. After a briefing by Stewart, Tauzin, chair of the House Energy and Commerce Committee, lauded the technology in a speech to telecom and Internet executives, trumpeting its "huge implications" for the cable and fiber-optic telecommunications industries. As Media Fusion's reputation grew, avenues once closed to Stewart began to open. Over a period of eight months, beginning in fall 1999, he pitched the Media Fusion future to executives at Sun Microsystems, Enron, SGI, Computer Associates International, AT&T, the FBI, the CIA, the Coast Guard, and dozens of other organizations. According to former Media Fusion employees, Stewart and CEO Edwin Blair, a former oil and gas exec, were offered investments of $20 million or more on at least three occasions. But Stewart and Blair, who together owned more than 80 percent of Media Fusion's stock, refused to cede control, and so passed on deal after deal.

After a briefing by Stewart, the chair of the House Energy Committee trumpeted the tech's "huge implications" for cable and fiber industries.

Blair told me that the company had nonetheless raised between $8 million and $10 million, largely from individual investors. The company also professed to have secured $5 billion from mostly unspecified "licensees," including a $1 billion agreement from a group of US rural electric cooperatives known collectively as Integrated Opportunities. Stewart "has an uncanny, intuitive ability to use technology," said Garen Ewbank, Integrated Opportunities' founder and the architect for the licensing deal. "I put him in the category with the Gutenbergs, and the Edisons, and the Bells, and the Einsteins."

Experts in the power line communications industry, though, were quietly doubtful. "Their approach is that you're too stupid to understand our technology," said Bill Moroney, president of the United Telecom Council, an information technology consortium of electric utilities. "I'm not going to say it doesn't work," he said, but his encounters with the company had left him with an "odd taste." Fearing legal action, UTC members were reluctant to speak out about Media Fusion. And who could say that ASCM was impossible? "You never know," he said. "They thought the Wright brothers were nuts."

I called Robert Kent, deputy director of Carnegie Mellon's Information Technology Development Center, hoping for a more definitive take. Stewart had told me Kent was leading Media Fusion's research and testing efforts at the university. "He's apparently a really brilliant guy," Kent said of Stewart. "There is a certain lack of formality in this work, which he admits to." But after Carnegie Mellon physicists had met with Stewart, and heard that he had conducted several successful experiments, "the consensus was that maybe there was something there."

Most of the money raised, according to CEO Blair, was being poured back into equipment, patents, and research. He didn't know how many engineers or scientists the company had hired already, but referred vaguely to "software gurus" working in the office. I asked him what kind of technical work these gurus were undertaking.

"Gosh, I don't really know," he said. "I know they were working on one deal for Luke on the big bang theory as it relates to the electric grid." The big bang? This company did everything big. It was all part of Luke Stewart's master plan, and Blair hit on the fundamental premise underlying it all: "The way we've looked at it from the beginning is

that God has given Luke a gift," he said. "And we want to give it to the world."

The Lord works in mysterious ways, they say, and if he's working through Luke Stewart, his methods are peculiar indeed. While the 47-year-old Stewart's corporate bio catalogs a lifetime of technological accomplishments and highly sensitive government work, a thorough dig into his background turns up a raft of pissed-off investors and disillusioned business partners. Media Fusion, it seems, wasn't Stewart's first attempt at saving the world through technology.

An early technical proficiency, he said, led him not to college but to the Navy, where he served three years and was trained in nuclear propulsion and special operations. (Stewart's available military records show only that he was trained as a machinist's mate.) Stewart's post-Navy achievements were nothing short of remarkable. He worked variously as an independent software developer for Microsoft in the 1980s; a leader of a team at Salomon Brothers that designed a secure financial transaction system for Alan Greenspan; a consultant on "advanced physical and technical security measures and countermeasures programs" for a company called Best Systems; and "director of defense imaging and information systems autonetics" for Orincon, a defense think tank. By its nature, this kind of sensitive work and independent contracting is difficult to verify. A Microsoft spokesperson would confirm only that Stewart is a "former employee," although at Media Fusion's offices I saw a small Microsoft plaque commemorating his Excel macro-writing. Salomon Brothers, merged twice over the past half-decade, could find no trace of his employment. Orincon confirmed that Stewart consulted for the company but said he never held any title. I couldn't find any trace of San Diego-based Best Systems, but on his old résumé the company was listed at the same address as "Stewart Consulting." All in all, there was little to prove or disprove his remarkable claims.

In the basement of the San Diego County Courthouse, however, I discovered a small window into Stewart's past. There I found a record of his first company, a venture called Claritek, which he founded in 1989. The idea behind it was essentially what is known today as telemedicine: The company would create technology to send cardiology images over the telephone lines, enabling hospitals to get real-time advice from heart specialists thousands of miles away.

Stewart intended to use a public demonstration to prove the technology worked - the same game plan he would later adopt to plug Media Fusion - and met with several top cardiologists and radiologists. "Everything he talked about seemed really neat," remembers Eric Hoffman, a professor of radiology at the University of Iowa. "It was vague and far-out enough that neither I nor my computer experts could figure out if it was real. At the same time, we couldn't say it wasn't real. When we tried to say, 'Let's go ahead with this, let's get some money in this,' we never heard from him again."

Symbolics, a hardware manufacturer that shipped Stewart more than $500,000 in workstations, found him similarly elusive. According to court documents from a breach-of-contract suit filed by Symbolics against Claritek in 1990, Stewart simply disappeared when the company tried to collect its money or its equipment. "Claritek is and at all times was a sham," one filing reads, "and was used by defendant Stewart as a device to avoid individual liability for the purpose of substituting a financially insolvent corporation in his place."

When a Symbolics employee showed up at a San Diego hospital to repossess some of the machines, they had been removed. After a city marshal tracked down most of the equipment at a storage facility, Symbolics dropped the suit.

Stewart's sales pitch mixed a barrage of technical jargon with tales of top secret intrigue, including hush-hush technology work for the World Bank.

I contacted Atle Steen, a San Diego-based engineer who knew Stewart at the time, to ask what he remembered about Claritek. His reply: "I sincerely don't believe Luke was a scam artist," he wrote in an e-mail. "But like many who are promoting a new concept and seeking venture capital, I expect he would emphasize the positive and downplay the negative." Still, Stewart's ventures for the seven years after Claritek - some of which were missing from his official story - repeated the same pattern. In San Diego, Las Vegas, and Washington, DC, he moved among a hazy network of small-businesspeople, gambling executives, and high tech vaporware peddlers. Interviews with nearly a dozen sources paint a picture of a fast-living pitchman seeking money for one idea after another, a man who could alternately bewilder and intimidate potential investors with a barrage of technical jargon and tales of top secret intrigue. Al Meranto, a federal grant writer and night club developer in Las Vegas, was a friend and business partner of Stewart's for more than a decade. "I watched him over the years bring certain beautiful ideas and inventions and thoughts that could change the entire world's application on things," he said. "But it seems that every time, he would start something, get to a certain level, and then literally disappear."

Many of Stewart's ventures, including an online gambling proposal called GOLD, operated under a limited liability corporation called Texas Information Development Commission, which he claimed was created to conduct secret technology work for the World Bank. Nancy Lee-Rohm, a former employee of TIDC, said she loaned him $50,000 to get the company off the ground. She said Stewart also ran up a $50,000-plus bill on a TIDC corporate credit card she had signed off on. Then he came to her asking for more. When she refused, he cleaned out the office and vanished, leaving her with more than $100,000 of debt. "He ruined my life," she said. "And he ruined my marriage due to what he put us through." Many former partners and investors tell similar tales, saying that Stewart lived extravagantly, traveling by limo and spending thousands on lavish dinners and hotel suites. Often, he was living on other people's dime - two people I spoke with claimed to have lost tens of thousands in hotel credit card charges by Stewart. "He'd take anything from anybody," said Meranto. "Nothing was sacred."

SEC documents reveal that in 1997, Stewart persuaded a company called Las Vegas Entertainment Networks to sign a $1.5 million contract for him to test ASCM at the El Rancho Hotel, and deploy it in Guatemala. According to the documents and a former partner, more than $1 million was paid out for equipment and expenses, but the technology was never tested. None of this was known to Edwin Blair, when in 1997 he stepped up to order a drink at a Dallas restaurant and started chatting with a man shuffling papers at the bar. It was Stewart, who proceeded to describe his magnetic wave discoveries and the potential of ASCM. Within weeks, the two were partners in Media Fusion, and Blair's connections started bringing in investments.

As Media Fusion's stature grew, those who had lost money to Stewart were baffled by

his newfound success. "He's got more balls than a slaughterhouse," said Henry Drexler, a retired doctor who says he invested and lost money on Stewart's Las Vegas ventures. "If bullshit was music, he'd be a hundred-piece symphony orchestra."

By spring 2000, few people knew that Luke Stewart's Media Fusion symphony was already in its final movement. Publicly, the company was still charging ahead, meeting with potential partners, reporters, and congresspeople. Positive stories, with just a hint of skepticism, appeared in Business 2.0, BusinessWeek, Forbes.com, and Popular Science. Behind the scenes, though, the business was beginning to crumble. That February, Media Fusion brought in an outside accountant to organize its finances. What he found, say several employees, was shocking. Stewart and Blair were each pulling in more than $1 million per year in salary and expenses. Stewart had resumed his spending habits, traveling by limo and dropping tens of thousands over the year on liquor and dinners. Soon after the accountant started asking questions, he was summarily dismissed.

The broadband test scheduled for March 15 was delayed month after month. Later, I discovered that Belo had never agreed to provide Stewart with HDTV. And with the stock market decline in April 2000, partners soon became scarce. Investors started looking for answers. "The money slowed down when the dotcom crisis hit," says Steven Yoder, a Tyler, Texas, doctor who was one of the company's first investors. "So the investors and the board members started looking at where did this money go?" In July, the board of directors reorganized the company and capped expense accounts.

Even by the standards of the dotcom boom, the founders' spending habits had been extraordinary. Stewart often flew by private jet and would commonly offer prospective employees double the salaries they requested. Corporate checks, wire transfers, and credit card records show that Stewart spent $350,000-plus on jewelry and more than $50,000 on sound equipment. But the "software gurus" described to me by Blair had never been hired. Over three years, in fact, Media Fusion employed only one engineer besides Stewart.

The negotiations with Carnegie Mellon, too, had collapsed when the university asked for access to the company's intellectual property. "At the end of the day, we decided that he did not know what he was talking about," said Robert Kent. "In our dealings with Mr. Stewart face-to-face, he was not able to explain the physics of what was going on." Stewart, meanwhile, often failed to show up for work at Media Fusion. Much of his time was spent renting thousands a month in music studio time to record a hodgepodge of local bands for his side project, a record label called Big G Records.

> **$50,000 on sound equipment, $350,000-plus on jewelry: Even by the standards of the dotcom boom, his spending habits were extraordinary. While Stewart was dabbling in the music industry, Media Fusion continued its slide. Salaries stopped being paid in December. Finally, the company was forced to take out a $275,000 loan, with a lien on the patent as collateral, to keep the lights on.**

As the company began to collapse, its champions in the government quickly ran for the exits. Terry McAullife left the board sometime in the summer of 2000. Now chair of the Democratic National Committee, he didn't answer repeated requests to comment for this

story. Neither did Representative Tauzin, who had lauded the company's potential impact a year before. Admiral Carey says he left in September, although his signature appears on Media Fusion PAC documents through December. Bob Livingston said only that "I was on the board; I did not have anything to do with day-to-day operations. And when, a few months ago, I saw things that I didn't like, I got off."

Stewart had enough clout left to earn an invitation to testify before Congress in October 2000, declaring that Media Fusion would "start an unprecedented era of social economic empowerment." By December, he was again empowering himself, obtaining a corporate credit card despite new expense restrictions at Media Fusion. He went on a lavish spending spree, charging jewelry, liquor, and more limousines. Finally, the directors had seen enough and voted to fire him as an employee in December. In January 2001, they removed him as chair. Ed Blair stayed on the board for a couple more months as a part-time consultant. On February 14, 2001, Media Fusion's Web site was replaced by a single page announcing Stewart's dismissal.

All told, Stewart, Blair, and the company had burned through $16 million since its inception. For all of that money, Media Fusion had never conducted a single lab test. And outside the company, no research institution in the world even bothered to try to verify the results of Stewart's supposed breakthroughs. Stewart's Nobel Prize, needless to say, never materialized.

"The whole idea is basically preposterous," said Robert Park, physicist and author of Voodoo Science: The Road From Foolishness to Fraud. "There were a bunch of warning lights. Probably the most significant is, it had absolutely no way of getting the signal through transformers. It doesn't work that simply, and in fact, there is absolutely no way to send the magnetic field, and not the electric field."

Park, like many scientists, doesn't feel like dwelling on the company. "I'm really not interested in beating up on Media Fusion," he says, "because they are not going anywhere. I think it's about over for Media Fusion. Rest in peace."

Park may have left Media Fusion for dead, but I wasn't so sure. There were rumbles from members of the company's new management team that they were seeking further funding. And somehow, I doubted that Stewart would go quietly. I traveled to Dallas once more, to hear his side of the story - and what he planned to do next.

At his latest residence, a cookie-cutter apartment complex in north Dallas, I stopped by one afternoon and left a note. To my surprise, he called me a few hours later, saying he'd love to get together and "talk about old times." That evening, after dropping off his black BMW convertible with the hotel valet, we sat at a small table and talked for two hours. I was struck by what little impact his firing had on him. "Media Fusion has great potential," he said cheerfully. "I have tremendous excitement when I consider the opportunity." He was moving forward with the development, he said, and still owned the rights to the patent and a majority interest in the company - facts the company's new management disputes. He said that both Integrated Opportunities and a typically obscure Korean outfit called PowerKorea 21 had licenses with him. Stewart danced around questions about his past and spending habits. Did he spend extravagantly? I asked. "What is extravagant?" he countered. Did he ride around in limos all the time, fly by private jet? "What is all the time?" Did he feel that funding his record label was irresponsible? No, it was a "service to

the community" and a "content bucket" for the company. Besides, he said, Ed Blair had signed his checks. His history, he said, was full of hangers-on looking to cash in on his ideas. He maintained that he had sold Claritek to "people in the health care industry," and that he countersued Symbolics and won. TIDC had never pitched an online gambling venture, he said - he was opposed to online gambling and had been lobbying against it. Las Vegas Entertainment Networks, he said, had never paid him a dime for ASCM development. He claimed he had never heard of Nancy Lee-Rohm, the woman buried under $100,000 of debt, and wouldn't comment on the thousands in credit card charges he was accused of running up.

"People are always trying to steal something for nothing," he said. "I think inventors run across that all the time." Stewart's answers were, at best, half-truths. There's no record of a countersuit against Symbolics, nor do either Stewart's or Symbolics' former lawyers recall any such suit. A videotape of a presentation by Stewart and his TIDC partners shows him promising "a thousand-, a million-fold" increase in revenue via TIDC's secure system for online gaming. His explanation of LVEN ran counter to both the SEC documents and what others had told me.

But there wasn't much point in arguing. Even when I told him flat-out about the documented evidence of his online gambling venture, he continued his blanket denials. It was all part of the persona he had fashioned for himself. "If you can't take criticism as a scientist, you ought to get out of the business," he said. "Galileo didn't have a good time, either." Stewart's persistence - capped by a July 5 press release announcing his "re-election" as the company's chair, sent out by his new PR rep, former D Magazine writer Richard Urban - has created a strange two-headed Media Fusion. Each side claims control of the name and the patent. The dispute appears headed for court. Both sides, meanwhile, talk of new deals just around the corner and unnamed research institutes awaiting the go-ahead to test ASCM. The original investors aren't holding their breath, and some are quietly hoping another PLC company will hit it big and somehow infringe the patent. While there has been talk among shareholders of suing, many have simply chalked up their losses to a bad market and moved on. (Stewart himself has also launched a company called Transcendent Technologies to develop grid-management software.) Could Stewart's product work? Who wants to disprove an idea that can change the world and fatten your bank account at the same time? Media Fusion, as Luke Stewart spun it, was about helping the world through technology and getting rich doing it. Stewart didn't create the demand for his product, he just gave the market what it wanted. People like Terry McAullife, Bob Livingston, and Billy Tauzin, investors, and journalists were already out there, seeking the next big thing. Without a physics degree, advanced sub-carrier modulation is difficult to understand, much less disprove. And who wants to disprove an idea that can change the world and fatten your bank account at the same time? The last time I saw him, Stewart was heading out of the Hotel Inter-Continental as the daylight faded over north Dallas. He seemed upbeat that our conversation had gone so well, and it left him a little reflective. "Everything's coming together," he said. "It's been a long haul, and it's probably going to be a little bit longer. People have misunderstandings, it happens all the time. It doesn't deter me from my pursuit of excellence. It makes me more careful." He smiled and shook his head as he turned away. "Entrepreneurs 101: It's a heck of an education, heck of an opportunity." So Luke Stewart - self-proclaimed national treasure - carries on. Chances are, we haven't heard the last of him, because Stewart sold his vision best to the one person

who will never pull the plug: himself. Once you become a man with a Big Idea, the mundane details of the scientific method can never match the thrill of changing the world with a sweep of your hand.